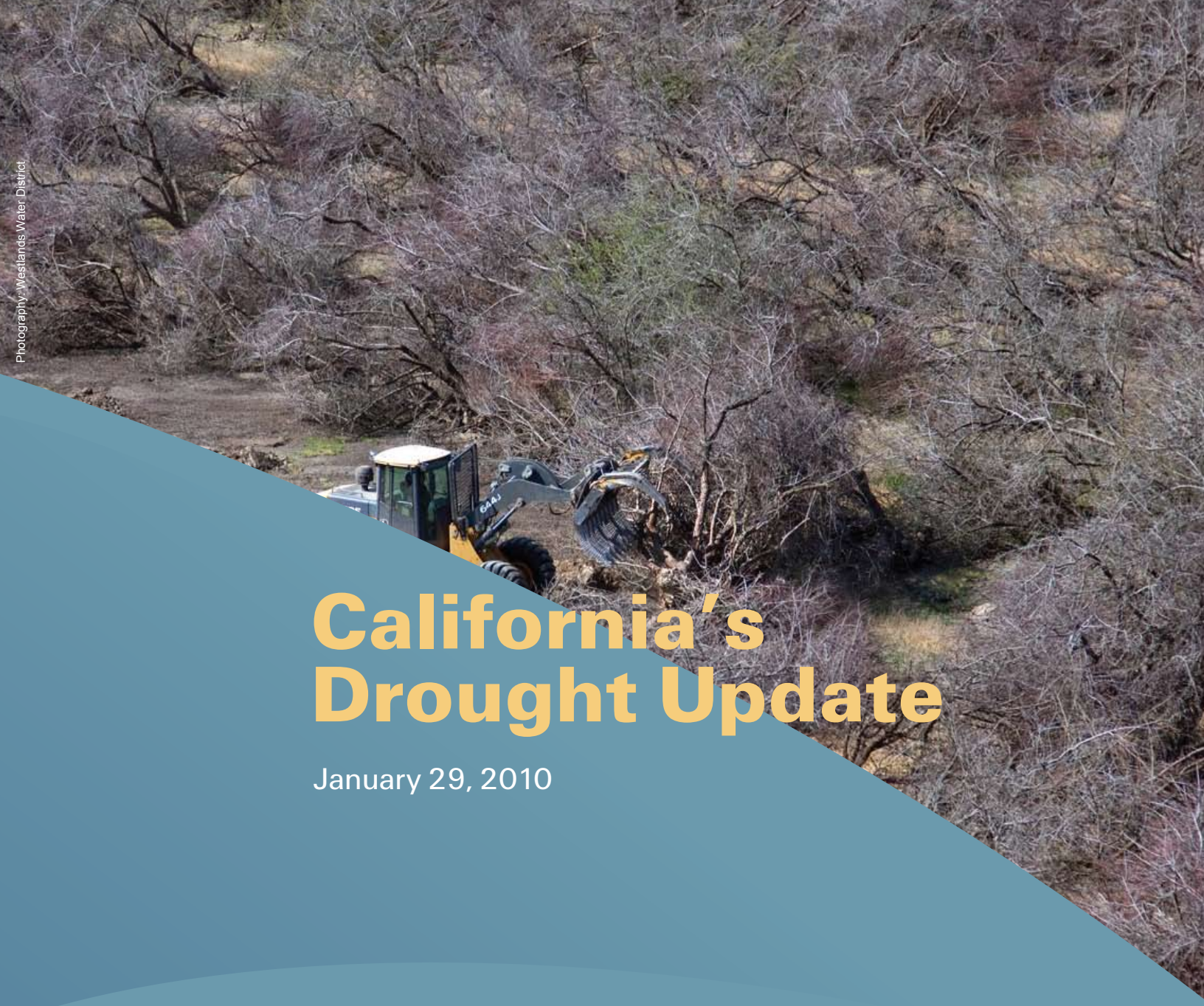

Photography: Westlands Water District

California's Drought Update

January 29, 2010

State of California
Governor
Arnold Schwarzenegger

The Natural Resources Agency
Secretary for Resources
Mike Chrisman

Department of Water Resources
Director
Lester A. Snow

California's Drought Update

Photography: Westlands Water District

Drought Operations Center
Phone: (888) 5-DROUGHT
(888) 537-6844)
E-mail: drought@water.ca.gov

Drought website:
http://www.water.ca.gov/drought/

Introduction

This drought bulletin provides a monthly update to California's water conditions. As the winter season is upon us, reservoir conditions have typically reached their lowest levels after summer demands. The total statewide October through December precipitation was 78 percent of average, further adding to our accumulated water supply deficit.

Information in the update is based on hydrologic data compiled through the end of December. This month's report includes: updated information on hydrologic and water supply conditions; local drought impacts; a discussion on historical drought periods; impacts by hydrologic region; and the status of drought emergencies declared by counties. Additional drought information can be found on the drought website, http://www.water.ca.gov/drought/.

Hydrologic and Water Supply Conditions

Precipitation

The 2009 Water Year (October 1, 2008 through September 30, 2009) was the third consecutive year of below average precipitation for the state. Annual statewide precipitation totaled 76 percent, 72 percent, and 63 percent of average for Water Years 2009, 2008, and 2007, respectively.

Table 1 compares the average monthly contribution to statewide precipitation to the observed precipitation from Water Years 2009 and 2010 (to date). January, April, July, August, September, and November 2009 were exceptionally dry while February, May, June, and October were well above average. However, Water Year 2009 finished at 76 percent of an average water year. Water Year 2010 through December stands at 78 percent of average. Consequently, the lack of precipitation has increased the state's accumulated water supply deficit.

Month of Water Year	Avg CA Precip (inches)	WY 2009 Observed	% of Average	WY2010 Observed	WY 2010 % of Avg
October	1.22	0.73	60%	2.07	169%
November	2.80	2.49	89%	0.77	28%
December	3.91	3.05	78%	3.33	85%
January	4.35	1.26	29%		
February	3.66	5.06	138%		
March	3.12	2.13	68%		
April	1.64	0.59	36%		
May	0.89	1.47	165%		
June	0.35	0.46	133%		
July	0.18	0.02	11%		
August	0.28	0.06	20%		
September	0.48	0.09	19%		
Total	**22.88**	**17.40**	**76%**	**6.17**	**78%**

Table 1. Average statewide precipitation by month with statewide precipitation values from Water Years 2009 and 2010. Data from California Climate Tracker (Western Region Climate Center): http://www.wrcc.dri.edu/monitor/cal-mon/frames_version.html

January precipitation through the 28th is above average January rainfall(see Meteorology and Hydrology section for updated numbers). Current equatorial sea surface temperature data indicates warm conditions above the El Nino threshold. These conditions are expected to continue at least into the Northern Hemisphere Spring 2010 based on a January 18 update by NOAA's Climate Prediction Center. The prevailing conditions may enhance the chances of increased precipitation throughout the upcoming winter months, although there have been several El Niño periods in recent decades that have produced drier than average statewide conditions.

The Northern Sierra 8-Station and San Joaquin 5-Station Precipitation Indices track the wetness of the Sacramento and San Joaquin River basins. These indices help correlate the health of the runoff into Central Valley reservoirs. Currently the 8-Station Index is at 102 percent of annual average with the 5-Station Index fairing slightly better at 113 percent of annual average. The averages for the 8-Station and 5-Station indices are 50.0 and 40.8 inches, repectively. Figures 1 and 2 show the current indices values compared to other Water Years.

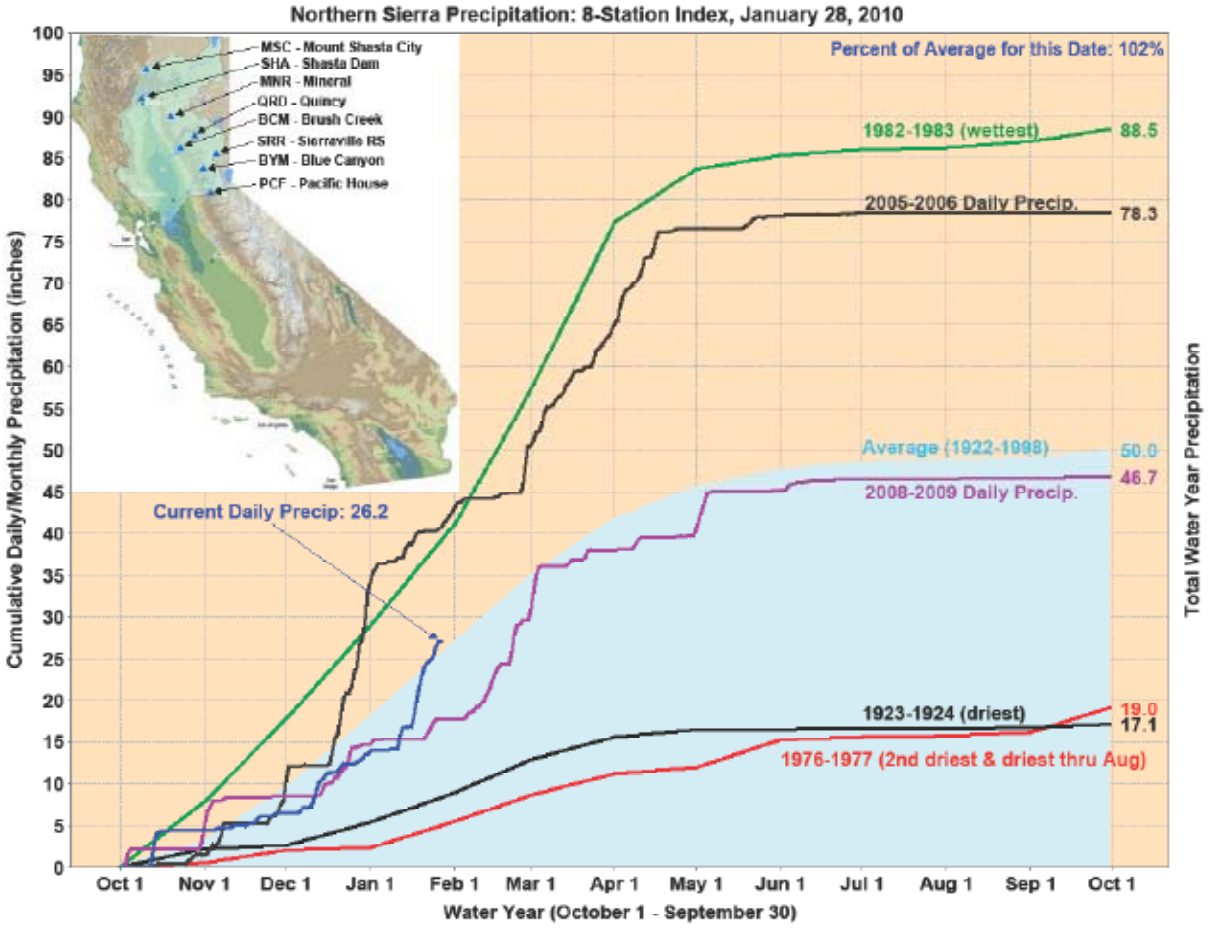

Figure 1. Northern Sierra 8-Station Precipitation Index

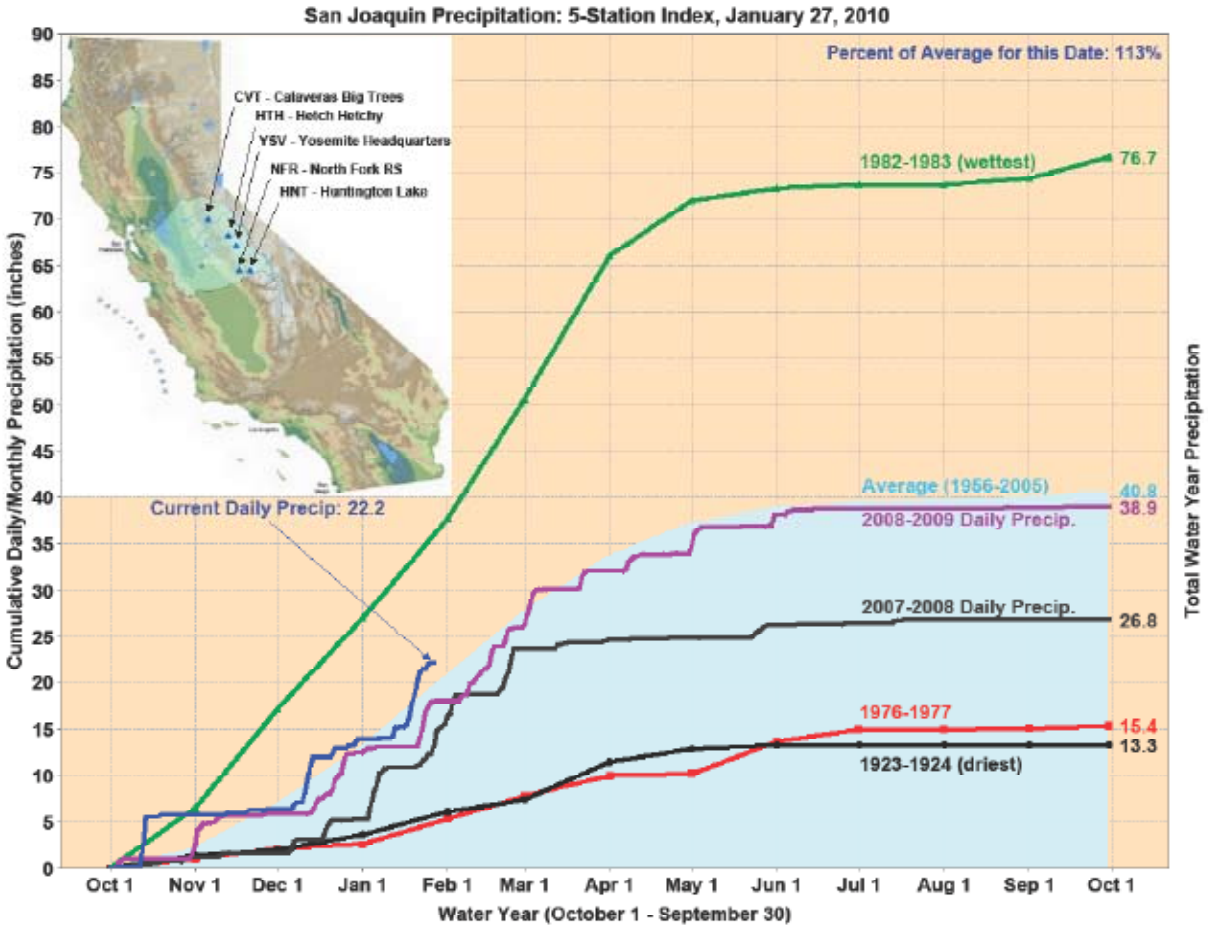

Figure 2. San Joaquin 5-Station Precipitation Index

Snowpack

As of January 28th, the statewide snowpack stands at 19 inches, which is 117 percent of average to date and 68 percent of the average April 1st (typical date of maximum snow accumulation) snowpack. During Water Year 2009, the snowpack peaked on March 25 at 25 inches, which was 88 percent of the average April 1st snowpack.

Reservoir Storage

Statewide reservoir storage at the end of Water Year 2009 was over 17 MAF or about 80 percent of average and 46 percent of capacity for the date, with individual key reservoirs much lower. Statewide reservoir storage on January 28, 2010 was 12.8 MAF which is about 79 percent of average and 50 percent of capacity. Figure 3 shows the condition of the state's larger reservoirs as of January 28, 2010.

Info source:
http://cdec4gov.water.ca.gov/cgi-progs/products/rescond.pdf or http:// cdec4gov.water.ca.gov/cgi-progs/reservoirs/RES/

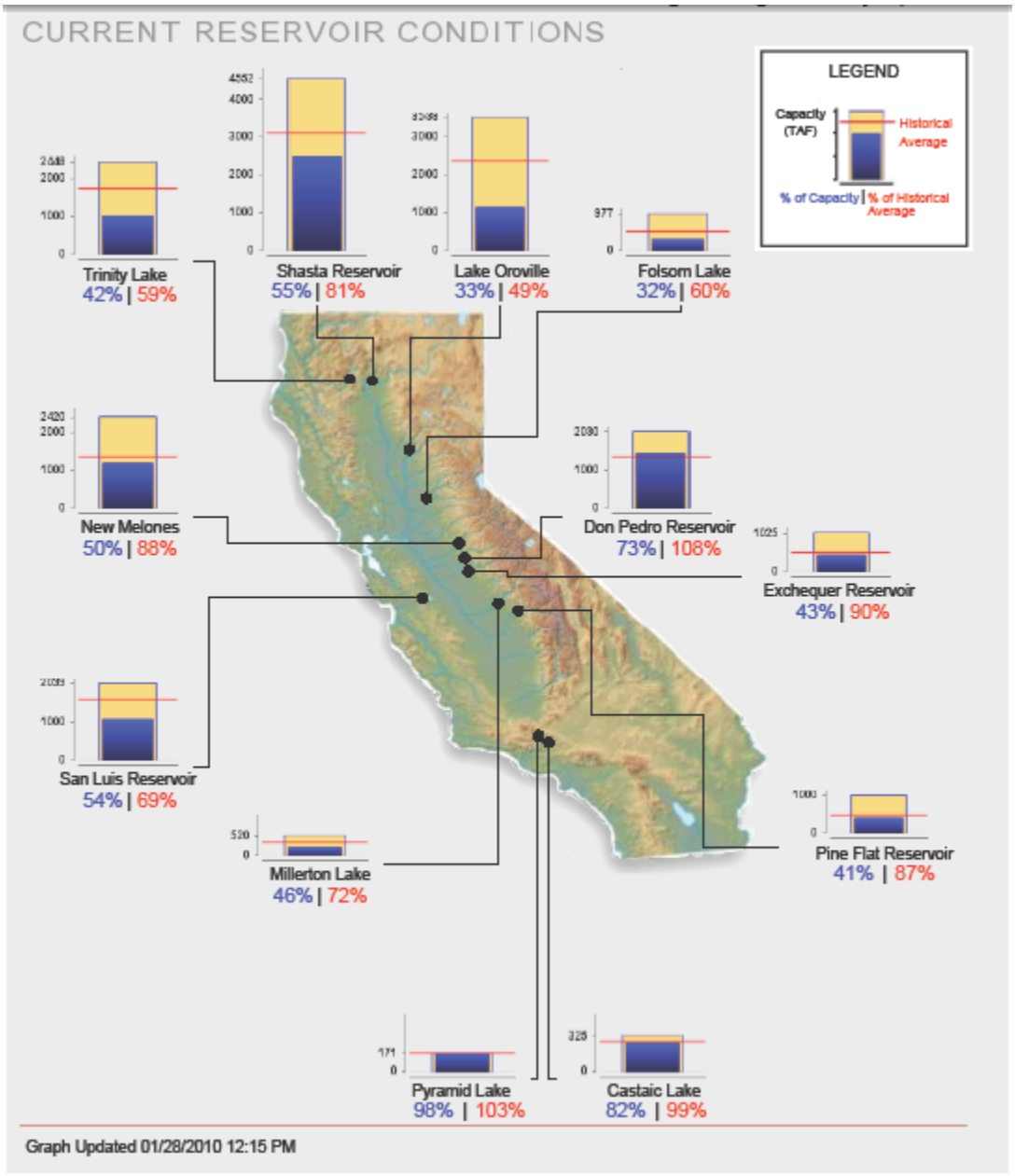

Figure 3. Reservoir storage for select reservoirs shown as percent of capacity (blue) and percent of average (red).

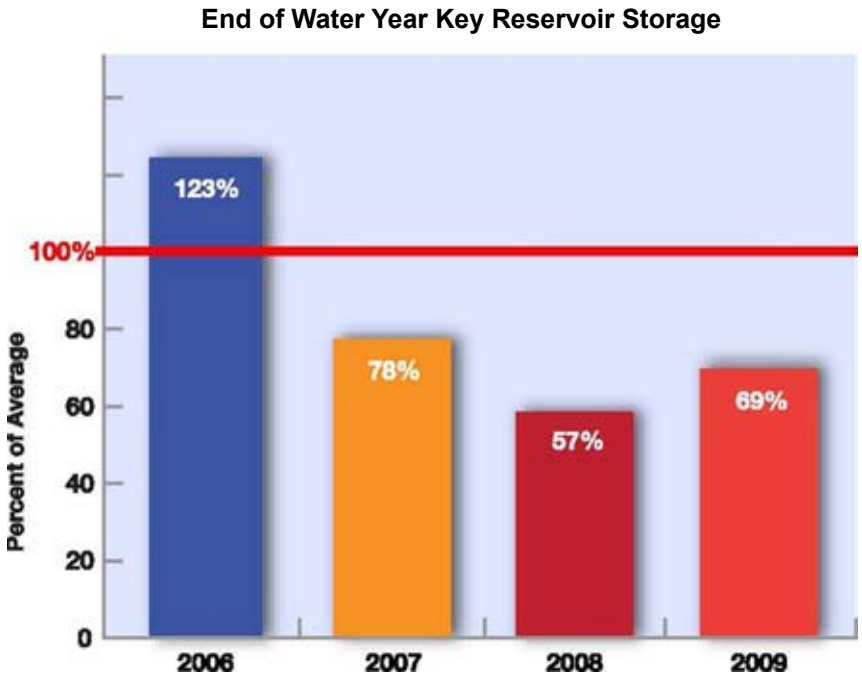

Figure 4. Percent of average end of water year storage for key reservoirs from 2006-2009. ("key reservoirs" comprise Trinity, Shasta, Oroville, Folsom, Don Pedro, New Melones, and San Luis reservoirs)

Figure 4 shows storage for key reservoirs for the end of the last four water years, including the end of this water year on September 30, 2009. The three-year drought, from 2006 to the present, was evident in the well-below normal storage readings. The state will enter the 2009-2010 Water Year with its key supply reservoirs at only 69 percent of average. As of January 28, 2010, the summation of storage in the "key reservoirs" was 73 percent of average.

Runoff

Figure 5 shows a comparison of the percent of average annual statewide runoff from Water Years 2006 through 2010 (the 2010 value includes only runoff from October through December and will be updated throughout the Water Year). Water Year 2006 was the most recent wet year in California, with 173 percent of average statewide runoff. Water Year 2007 was the first of three dry years, ending with 53 percent of average statewide runoff. Water Year 2010 stands at 42 percent of average to date (through December). A revised 2010 percent of average annual statewide runoff will be issued in early February for conditions through January and is expected to increase due to the above average precipitation and snow observed this month (through January 28th).

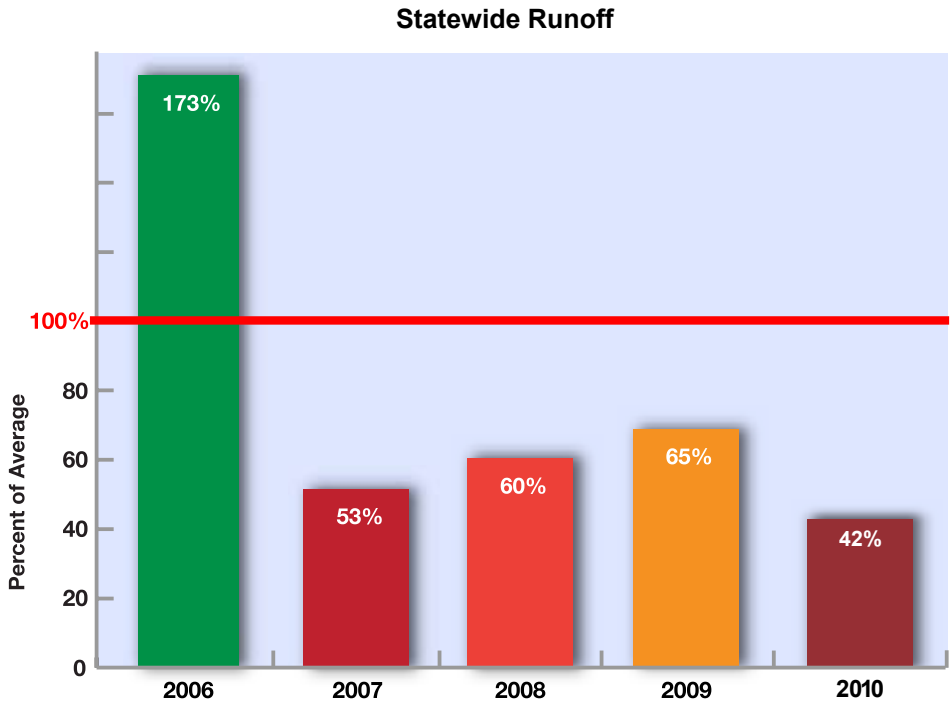

Figure 5. Statewide runoff for water years 2006, 2007, 2008, 2009 and 2010 (through December 31, 2009)

Table 2 shows the Sacramento and San Joaquin River Runoff, WSI and year type for select water years based on observed runoff. This table includes the January 1, 2010, forecasted Sacramento and San Joaquin River Runoff, WSI and Year Type.

	Sacramento River			San Joaquin River		
Water Year	Runoff MAF	Index	Year Type	Runoff MAF	Index	Year Type
2006	32.09	0.73	W	10.44	5.9	W
2007	10.28	2.49	D	2.51	2.0	C
2008	10.28	3.05	C	3.50	2.1	C
2009	12.91	1.26	D	4.97	2.7	BN
2010	13.5	January 1, 2010 forecast		5.2	January 1, 2010 forecast	

Table 2. Sacramento and San Joaquin river runoff, WSI, and year type for select water years based on observed data (W=wet, D=dry, C=critical, BN=below normal)

The Sacramento River Unimpaired Runoff was forecasted to be 13.5 million acre-feet (MAF) on January 1, 2010. The San Joaquin River Unimpaired Runoff was forecasted to be 5.2 MAF on January 1, 2010. Both estimates are expected to increase due to the accumulated precipitation and snow this month in the Sacramento River and San Joaquin River basins. The updated runoff forecasts will be published in the February 1, 2010 DWR California Cooperative Snow Surveys Bulletin 120.

Include: http://cdec.water.ca.gov/cgi-progs/iodir/wsi

Meteorology and Hydrology

As of January 28, 2010, Water Year 2010 is near normal conditions. As of December 31, 2009 statewide precipitation was at 85 percent of average, runoff 40 percent of average, and reservoir storage 75 percent of average. Early estimates for end-of-January reservoir storage show an increase of approximately 2.3 million acre-feet increase in storage which corresponds to 81 percent of average to date. At the end of December, statewide snowpack was at 77 percent of average. After January's storms, statewide snowpack improved to 117 percent of average for this date (as of January 28, 2010) which is also 68 percent of the April 1 average. April 1 is considered the peak accumulation of the seasonal snowpack.

Precipitation was widespread and heavy at times in January as a series of wet Pacific storms crossed the state. From January 16th to the 23rd areas in the southeast desert region received enough precipitation to account for more than half their annual total. In the north, the 8 station index recorded 12.6 inches for January which is 140 percent of average. This puts the water-year total at 26.2 inches which is 102 percent of average for this point in the water year. Last year at this time, the 8-station index was at 68 percent of average after a very dry January. The only places to miss out on the abundant precipitation were Modoc County, northern Lassen County, and northeastern Shasta County east of the crest of the Cascades.

Climatology

Water year 2010 started off with below normal conditions in the fall season moving California into its fourth year of drought. Conditions changed markedly in mid-January as atmospheric conditions associated with a moderate to strong El Niño started to dominate the state's weather. These conditions are expected to continue through February. The National Oceanographic and Atmospheric Administration's Climate Prediction Center one –month precipitation outlook shows above normal expectations for California with the exception of the far northern counties.

SWP Allocation

On November 30, 2009, the Department of Water Resources announced an initial allocation of five percent of the requested water deliveries to the State Water Project (SWP) contractors for 2010. Five percent is the lowest initial allocation percentage since the SWP began delivering water in 1967. The previous low for an initial allocation as a percentage of SWP contractors' requests was 10 percent in 1993, but that number was increased to 100 percent

during the year as water supply conditions improved. The initial figure for 2009 of 15 percent was increased to a final allocation of 40 percent in May. The historical average of final SWP allocations as a percentage of initial requests over the past 10 years has been 68 percent.

The initial allocation is a very conservative estimate of what DWR expects it can delivery as a percentage of SWP contractors' initial requests for contracted water deliveries for a calendar year. The initial allocation figure reflects the low carryover storage levels in the SWP's reservoirs, 2010 contractor demands, ongoing drought conditions and federally mandated environmental restrictions on water deliveries from the Sacramento-San Joaquin Delta to protect endangered fish species in the Sacramento-San Joaquin Delta.

This year, the contractors have requested 100 percent of the maximum contractual amount allowed -- 4,171,996 acre-feet. While the initial 2010 allocation is only five percent of that amount, actual deliveries are expected to increase during the year once actual hydrologic and water supply conditions are known. SWP contractors provide water to more than 25 million California residents and more than 750,000 acres of farmland.

The announcement is part of the Department's effort to implement Gov. Schwarzenegger's Drought Executive Order (S-06-08) directing DWR to help local water districts and agencies proactively address these conditions.

A notice to SWP contractors appears on DWR's State Water Project Analysis Office Web site at:
http://www.swpao.water.ca.gov/notices/

Local Impacts and Responses to the Drought

Figure 6 shows USDA disaster declarations fro drought as of December 31, 2009 for most of California's counties. Such declarations can be a prerequisite for other USDA financial assistance programs in addition to its emergency farm loan program. The figure updates information from the DWR report, *California Drought, An Update: 2009* released in December.

Westlands Water District (WWD) is the nation's largest water district. It has been called "Ground Zero" for the continuing California drought and water shortages. Table 3 on next page shows the large changes in crop acreage that have occurred in WWD since the start of the drought. Note the major declines in harvested acres of annual crops between 2006 and 2009 including a 53 percent drop in field and seed crop acres, and a 23 percent fall in truck crop acreage. Some of the trends in acres for individual crops have been very significant. Lettuce fell by 46 percent, fresh tomatoes dropped by 48 percent, broccoli decreased by 72 percent, cotton fell by 87 percent, grain sorghum declined by 90 percent, and sugar beets disappeared altogether.

Figure 6. California Counties with USDA Disaster Designations due to Drought as of December 31, 2009

Table 3. West Lands WD Crop Acres: 2006 v. 2009
Data from WWD Crop Acreage Reports, Compiled by DWR

WWD / Crop	2006/Acres 1/	2008/Acres 1/	2009Acres 1/	% Change 2006 to 2009
Field & Seed Crops				
Alfalfa - Hay	13,304	13,144	12,428	-6.6
Barley	5,647	10,581	3,697	-34.5
Beans - Garbanzo	6,352	1,939	9,054	42.5
Corn - Field	2,427	2,737	1,345	-44.6
Cotton	130,273	37,396	17,510	-86.6
Grains - Sorghum	19,293	11,540	1,846	-90.4
Oats	4,182	1,306	588	-85.9
Pasture, Irrigated	1,027	1,109	287	-72.1
Safflower	2,564	38,782	1,313	-48.8
Sugar Beets	4,228	3,031	0	-100
Wheat	35,037	64,707	53,748	53.4
Other Field & Seed Crops	4,043	4,570	4,717	16.7
S-T, Field/Seed:	**228,377**	**190,842**	**106,533**	**-53.4**
Truck Crops				
Broccoli	6,106	1,266	1,688	-72.4
Cantaloupes	15,580	16,460	12,379	-20.5
Corn - Sweet	5,778	5,619	5,537	-4.2
Garlic	10,486	10,285	8,857	-15.5
Honeydews	3,270	2,376	3,088	-5.6
Lettuce	27,039	16,129	14,655	-45.8
Onions	18,268	11,483	11,224	-38.6
Tomatoes - Fresh	5,832	3,495	3,020	-48.2
Tomatoes - Processed	87,418	86,011	78,205	-10.5
Other Truck Crops	7,620	4,857	5,219	-31.5
S-T, Truck Crops:	**187,397**	**157,981**	**143,872**	**-23.2**
Tree & Vine Crops				
Almonds	55,180	70,252	67,863	23.0
Grapes	12,704	13,836	13,905	9.5
Oranges	1,126	1,641	1,615	43.4
Peaches	1,181	1,181	1,231	4.2
Pistachios	15,130	21,113	17,396	15.0
Pomegranates	1,814	2,994	3,400	87.4
Other Tree & Vine Crops	3,055	3,363	2,997	-1.9
S-T, Tree & Vine:	**90,190**	**114,380**	**108,407**	**20.2**
Other Groups, Totals				
NB Trees & Vines 2/	17,168	11,069	18,614	8.4
Fallow	54,944	99,663	156,239	184
Non-Harvested 3/	1,980	1,103	41,156	1,979
Subtotal	580,056	575,038	574,982	-0.9
Double Crop	20,312	6,411	6,330	-68.8
Total 4/	559,744	568,627	568,652	1.6
Total Harvested Acres:	505,964	463,203	358,812	-29.1
Acres Not Harvested:	74,092	111,835	216,009	192
CVP Allocation (%):	**100**	**40**	**10**	

1/ USDA-CFSA net cropped acreages, for the crop year ending in December.
2/ Nonbearing trees and vines.
3/ Includes experimental and nursery crops, as well as crop failures.
4/ Total net cropped acreage in WWD, excluding feed lots & non-farm areas.

North Coast, Bay Area, and Sacramento River Hydrologic Regions — The month of January provided some relief to concerns about falling water levels in Lake Mendocino over the past few months. In November, 2009 the Mendocino County Board of Supervisors had amended an ordinance requiring a 50 percent mandatory requirement on communities affected by Lake Mendocino water. The ordinance was suspended but could be imposed again if the Lake drops below the 30,000 AF level. Figure 7 shows that storage during the latter part of January this year increased from 32,000AF to 53,000 AF and is now at the same level as it was in 1977 and in 2008, about 16,000 AF below average.

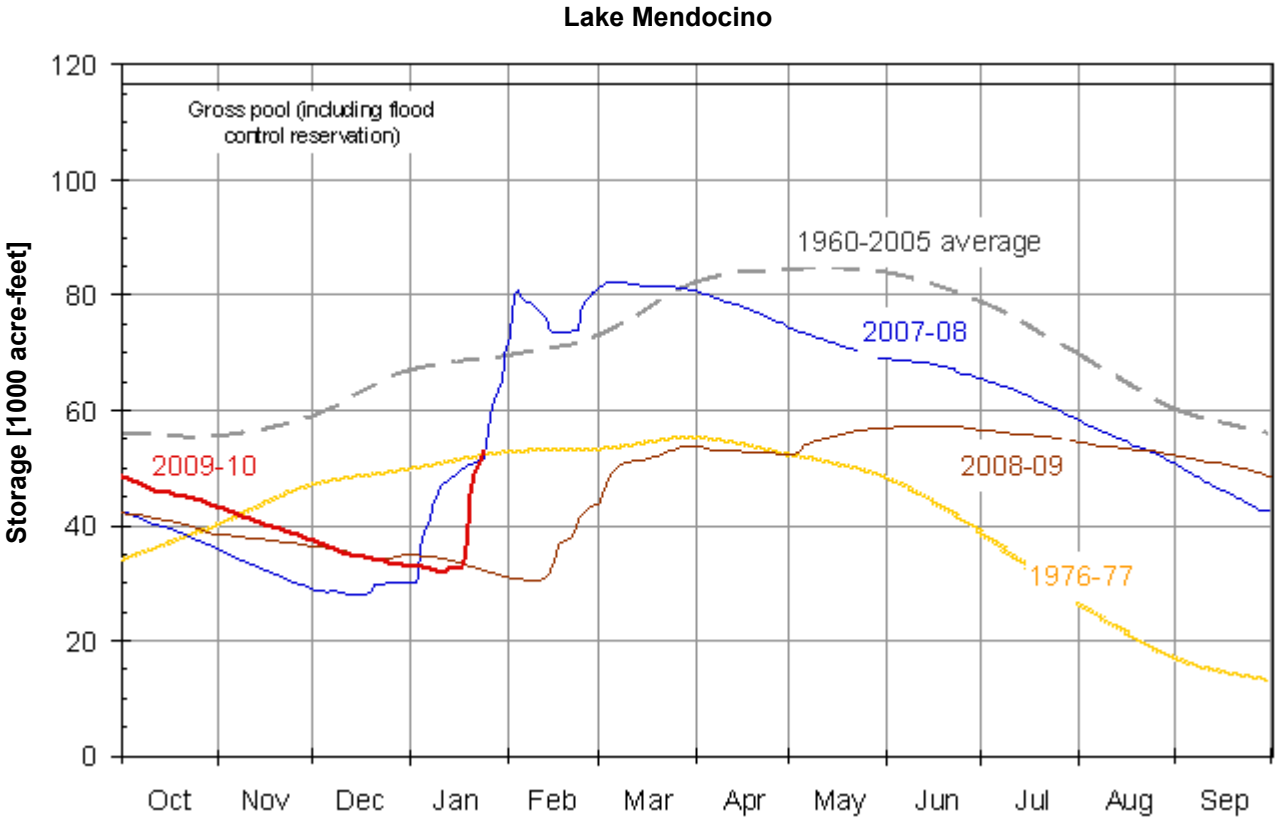

Figure 7. Storage in Lake Mendocino

Storage in Marin Municipal Water District reservoirs increased by about a quarter of capacity so far during January, and is now above average. Storage in Santa Clara Valley Water District reservoirs increased about 14percent of capacity so far during January, and is now above average with Coyote Reservoir approaching capacity. Storage in Yolo County Flood Control and Water Conservation District's Indian Valley Reservoir remains extremely low at only 10 percent of capacity. Note that the distribution of precipitation in the last two weeks has favored parts of the North Coast, and the areas immediately surrounding Lake Shasta and Lake Oroville, with less precipitation at higher elevations in the northern and central Sierra and in the North Lahontan region.

North Lahontan Hydrologic Region — Lake Tahoe's water level has gained about 3 inches since the beginning of January and is back to the natural rim (elevation 6223 feet). Most reservoirs in the Sierra had only slight storage increases since most of the precipitation added to the snowpack.

South Coast, South Lahontan, and Colorado River Hydrologic Regions — Despite the recent storms local agencies continue to aggressively implement conservation programs that reduce water demand and lessen dependency on imported water supplies. The most recent data available indicate a small rise in the level of some key reservoirs in Southern California operated by the Metropolitan Water District and San Diego County Water Authority due in part to the series of storms that moved through the region. The combined reservoir storage is at 49 percent of capacity, up by 2 percent prior to the storms.

The Water Replenishment District (WRD) and other local agencies are making it a point to remind water users that although the recent storm system will help recharge the groundwater table, it is still not enough to make up for three years of drought and certainly not enough to make up for the lack of imported water for groundwater replenishment for the past three years. WRD is pressing ahead with implementation of its Water Independence Now program, a local, sustainable, and reliable water supply initiative designed to completely eliminate the region's reliance on imported water for groundwater recharge through increased storm water capture, water recycling and water conservation projects.

Mandatory conservation programs continue to be the preferred choice by local agencies in response to the drought with positive results recorded throughout the region. According to the Los Angeles Department of Water and Power, during the first five months of mandatory water conservation which began in June, 2009, single-family residential water customers used 23.2 percent less water when compared to the same time period in 2007 and overall water use for all customers was down 18.4 percent. In the San Diego area where many local agencies have declared a Level 2 Drought Alert to lower water demand by up to 20 percent, homeowners and businesses were reminded to turn off irrigation systems in anticipation of the recent rain storms and the region's water wholesaler estimates a one-week hiatus from using landscape watering systems across the region could save 2,000 AF of water in addition to existing water use restriction already in place.

Overall, the recent storms may have brought some relief but even when the region gets more rain, water shortage is not expected to ease due in part to legal restrictions on water pumped through the Bay-Delta.

Water Conservation Actions by Local Water Agencies

As of January 29, 2010, there are 67 local water agencies in California that have mandated water conservation and 56 water agencies urging voluntary conservation measures. This is unchanged from the previous month. A current update of the number of agencies mandating conservation and urging voluntary conservation measures can be found at the Association of California Water Agencies (ACWA) website, http://www.acwa.com/issues/cadrought/

Planning for a Dry 2010

DWR continues to work on actions to prepare for the possibility California's drought continuing into 2010 and beyond. These include increased water conservation, 2010 water transfers, a long-term water transfer program, improvements to the California Irrigation Management Information System, and improved coordination of emergency response activities.

DWR will continue to monitor water supply conditions and drought impacts to identify any necessary supplemental response actions this year and will move aggressively to plan for a potentially dry 2010 in coordination with other state, federal and local agencies and the water community. These actions are part of the Department's effort to implement Gov. Schwarzenegger's Drought Executive Order (S-06-08) directing DWR to help local water districts and agencies proactively address these conditions.

Researchers at the University of Southern California (USC) recently completed a comparison of the current California drought to previous droughts. The USC research sought to determine how the current California drought compares to previous droughts during the 20th century and to ascertain if the current drought is fundamentally different and therefore arises from a different underlying dynamical mechanism. Climate patterns were researched and preliminary findings indicate that the current drought may not have the same characteristics as previous droughts. It was suggested that we could be in for an extended period of drought, creating further serious implications on water resources.

For more information on Planning for a Dry 2010, see our DWR link on Drought Planning and Preparedness at http://water.ca.gov/drought/planning.cfm/ .

Drought Contingency Plan

DWR's Water Plan staff and State Agency steering committee are working on a draft of a 5-year Statewide Drought Contingency Plan. The strategic plan is a long-term, comprehensive plan that promotes and emphasizes local drought planning efforts throughout the state and establishes a coordinated response framework. It will focus on methods to evaluate drought severity, identify impacts from droughts, and suggest measures to reduce the economic, environmental, and social risks and consequences of drought events. A public review draft of the Drought Contingency Plan is scheduled for release at the end of February, about same time as the release of the final draft of the Water Plan Update 2009.

Updated Model Water Efficiency Landscape Ordinance

On September 10, 2009, DWR released an updated Model Water Efficient Landscape Ordinance (Model Ordinance) to assist local governments in reducing water waste in landscapes. The Model Ordinance addresses water budgets for landscapes, the prevention of excessive erosion and irrigation runoff, landscape and irrigation design requirements, the use of recycled water where available, irrigation audits, and the scheduling of irrigation based on local climate. Local governments and urban water suppliers can adopt and implement the Model Ordinance, or a local ordinance that is at least as effective as the Model Ordinance.

California *local agencies* are adopting water conservation landscaping ordinances in order to comply with Assembly Bill 1881, the Water Efficient Landscape Act, requiring cities and counties, including charter cities and charter counties to adopt landscape water conservation ordinance by January 1, 2010. The notification deadline to DWR is January 31, 2010. DWR *will* submit a report to the legislature on the status of adopted ordinances by local agencies *by* January 31, 2011.

2010 Water Transfers Program

Despite recent storms, there remains the possibility that a fourth consecutive year of drought may require some areas in California to supplement their water supplies with transfers from willing sellers. The purpose of the 2010 Water Transfer Program is to facilitate the transfer of water within the State between willing sellers and buyers that are at risk of experiencing water shortages in 2010. DWR is working cooperatively with Reclamation to expedite water transfers. Unlike past years, there will be no Drought Water Bank in 2010. Accordingly, water transfers will be approved by DWR and Reclamation on an individual basis. Most transfers are expected to occur between willing sellers upstream of the Delta to buyers that export water from the Delta. DWR and Reclamation's primary role will be to convey water across the Delta to buyers when needed.

One of the most important developments following the 2009 Drought Water Bank is an agreement between agencies and stakeholders that an ongoing, long-term water transfer program needs to be created. Even though the need for water transfers may vary from year to year, external factors including climate change and the numerous challenges facing the Delta are increasing the need for water transfers to meet local water supply needs in future years. DWR and Reclamation have committed to the development of a long-term water transfer program and have begun the process of environmental compliance for the program.

Parties proposing to buy or sell water and will require the use of State Water Project and/or the federal Central Valley Project facilities are referred to the Draft Technical Information for Water Transfer in 2010 for detailed guidance. This information can be found at http://www.water.ca.gov/drought/transfers/ .

Drought Response Coordination with Australia

A Water Forum and workshops were held this month in Los Angles as part of the G'Day USA: Australia Week 2010 celebration. The purpose of the event was to share information about water and drought issues common to both countries. It provided a unique opportunity to learn how Australia is responding to the critical challenges of reduced rainfall and prolonged drought.

As the driest inhabited continent on earth, Australia has faced a unique and serious water challenge. Climate change has required governments, industry and citizens to quickly respond to sudden and prolonged water shortages. This focus has lead to distinctive approaches, changes in governance, consumer behavioral change and innovations in technology. The workshops provided a more intimate setting to learn about how Australia has approached agricultural water reform, a national water policy and the key elements required, desalination for rural and coastal communities, and urban demand management.

A few of the major lessons from Australia presented at the forum and discussed during workshops were the following:

- Dramatic reductions in inflow over a prolonged dry period created the need to act.
- A national water reform agenda provided the agreed to water policies for implementing change.
- Understanding and cooperation occurred among agricultural and urban users and environmental needs.
- Developing a flexible water system that allows tradability of water in water markets.
- A strong commitment to conservation and innovations in technology.
- Embraced desalination using renewable energy sources which has resulted in the completion or near-completion of six large desalination plants over six years.
- Public education and participation in water reforms are critical.

More information on water reform in Australia can be found at the Australia National Water Commission webpage, http://www.nwc.gov.au .

Summary

The current drought period beginning in 2007, has left a significant deficit in our reservoir's carry-over supplies. Water Year 2008-09 ended with 65 percent of average statewide runoff, with the Sacramento region Water Supply Index (WSI) classified as "Dry" and San Joaquin River region WSI classified as "Below Normal". Based on storage for key reservoirs at the end of the last three water years, the state entered the 2009-2010 Water Year, beginning October 1, with its key supply reservoirs at only 69 percent of average and 42 percent of capacity. The recent January storms have raised reservoir levels a little for the major reservoirs. However, with the exception of New Don Pedro, major reservoirs are well below the historical averages for end of January storage.


Photography: Westlands Water District

The January 29, 2010 Drought Update was prepared by:
Douglas Osugi, Supervising Engineer

Credits:

Statewide Hydrologic and Water Supply Data
Boone Lek, Senior Engineer
Andy Reising, Engineer
John King, Engineer
David Rizzardo, Senior Engineer
Michael Anderson, State Climatologist
Derick Louie, Engineer
Tracy Pettit-Polhemus, Supervising Engineer

Local Drought Impacts and Responses
Jim Rich, Economist
Pierre Stephens, Supervising Engineer
Gary Lippner, Senior Engineer
Shicha Chander, Engineer
David Barth, Student E & A
Brian Moniz, Senior Engineer
Abiodun Aderonmu, Engineer
Dean Messer, Chief, Office of Water Transfers
Manucher Alemi, Chief, Water Use and Efficiency Branch

Production Services
Xiaojun Li, Graphic Services
Mark McCort, Graphic Services
M. Elizabeth Scott, Public Affairs Information Officer